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27 October 1954

MEMORANDUM FOR: THE RECORD

SUBJECT: Visit to [] P-151

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1. Time and Place of Meeting: On October 26, 1954 a meeting was held at []

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2. Attendance: Present were:

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3. Purpose: The purpose of the meeting was to determine [] progress with the infrared counter and to re-evaluate [] potentialities as an APD contractor.

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4. Discussion:

a. [] reviewed the progress with the infrared counter. The counter design involves the following:

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A germ of wheat tungsten lamp as a source with a collimating lens and an infrared filter. The receiver design consists of a focusing lens, a lead sulfide detector, a transistorized amplifier, and a counter. [] proposed that a modified watch be used as a counter. The main spring of the watch would provide the motive power while the clock face would be calibrated in counts. The output of the amplifier would power a very low power solenoid arrangement which would release the escapement once for each count. As most watches count time in increments of one fifth of a second a total of $5 \times 60 \times 60 \times 12 = 216,000$ counts would be possible with an ordinary watch with virtually 100% accuracy throughout the entire range.

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b. A breadboard model of the infrared counter without the proposed counting mechanism was shown. The source is as indicated above. The receiver consists of an evaporated PbS cell with a single tube amplifier operating a relay. Upon examination of a rough circuit diagram of the receiver section [] commented to the effect that difficulties in operation at other than room temperature might be encountered.

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DOCUMENT NO. 14

NO CHANGE IN CLASS. ☐☐ DECLASSIFIED

CLASS. CHANGED TO: TS S

NEXT REVIEW DATE:

AUTH: HR 70-2

DATE: 24/10/80

REVIEWER: 010956

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c. []

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c. [] then headed a tour through the expanded facilities at []. These include rebuilt rooms to provide adequate bench space, a model shop, and a spectrometer presently being used to determine spectral response for cadmium sulfide cells.

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d. [] discussed several interesting effects observed with cadmium sulfide cells. These included a capacitance change by a factor of more than one million between dark and light states of the cell, and the infrared quenching effect. In this phenomenon, the effect of visible radiation on the cell is quenched by irradiating the cell with infrared.

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5. Conclusions:

a. [] is continuing seriously with their cadmium sulfide work. Their work in this field may best be described as a high type of engineering development. Some of the work borders on basic research in the field although most of the theoretical work has been farmed out to []. [] performance with the infrared counter has been satisfactory. Although it is believed that they could successfully complete the project, they are not particularly suited for the project.

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6. Recommendations:

a. It is recommended that work at [] be halted pending the submission of [] report and that subsequent decisions be made regarding future work with [].

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Distribution:

Orig. - P-151 ✓

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